[0009] Alternatively, the garment in accordance with the present invention may be used as a removable inner insulating layer having an outer shell which may or may not be weather proof. This inner insulating layer may also be worn as a standalone garment when detached from the outer shell. Like in the previous example, the removable inner insulating layer may be presented as a vest, a jacket, a body suit, etc., depending on the type of garment and protection desired. For example, if the outer shell is a long sleeved jacket, the insulating layer may be presented as a vest, a jacket, or a jacket with removable sleeves to convert into a vest, depending on the amount of insulation desired. The insulating layer may be fastened to the outer shell by a zipper mechanism, buttons, hook and loop fasteners, or any other fastening mechanism available in the market, and/or any combination of fastening mechanisms available.

[0010] Further, the garment in accordance with the present invention may be engineered into an outer shell. In other words, instead of being removable, an insulating and breathable garment in accordance with the present invention may be permanently attached to the outer shell. This may be achieved by stitching the outer shell to the inner insulating and breathable layer at garment forming seams, meaning the seams located at the top of the shoulders, and/or the side seams running from under the arm socket of a wearer along the length of the garment to the bottom end of the garment. Alternatively, an insulating and breathable layer may be integrated into an outer shell layer by forming the shell from the same textile as one or both of the textiles that form the chambers, by knitting or weaving the shell to the inner layer, using adhesive, etc.

[0011] Additional objects, advantages, and novel features of the invention will be set forth in part in the description which follows, and in part will become apparent to those skilled in the art upon examination of the following, or may be learned by practice of the invention.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0012] The present invention is described in detail below with reference to the attached drawing figures, wherein:

[0013] FIGS. **1**A and **1**B are a front and back view, respectively, of an exemplary cold weather vented garment in accordance with the present invention;

[0014] FIG. **2**A is a close up view of a section of a venting seam from the cold weather vented garment in FIG. **1**A;

[0015] FIG. **2**B is a close up view of a section of a different example of a venting seam from a cold weather garment in accordance with the present invention;

[0016] FIG. **3** is a cross-sectional view of a small section of the cold weather vented garment in FIG. **1**, where the insulating chambers are shown in relation to the perforated seams;

[0017] FIG. **4** is a view of a different exemplary cold weather vented garment in accordance with the present invention;

[0018] FIG. **5** is a close up view of a section of a venting seam from the cold weather vented garment in FIG. **4**;

[0019] FIG. **6** is a cross-sectional view of a small section of the cold weather vented garment in FIG. **4**, where the insulating chambers are shown in relation to the perforated seams; and

[0020] FIGS. **7**A and **7**B depict front and back view of an additional exemplary cold weather vented garment in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0021] FIGS. **1**A and **1**B are a front view **140** and a back view **150** of a vented cold weather garment **100** in accordance with the present invention. The vented cold weather garment **100** in FIGS. **1**A and **1**B may be made from conventional synthetic or natural fabrics. The fabrics may be water repellent and fill proof, or alternatively such as in the case of light fabrics, they may need to be treated with waterproofing and down proofing chemicals such as for example, the chemical treatments referred to as DWR (durable water repellent). Since cold weather garments may be down or synthetic thermal fiber filled, an upside of these treatments, is that they prevent the fill from poking through the fabric and, they prevent water moisture from the environment from entering inside of the garment. A downside of these chemical treatments on fabrics, is that these treatments may create a barrier preventing moisture generated from perspiration to evaporate when the vented cold weather garment is in an as-worn configuration.

[0022] The vented cold weather garment in FIGS. **1**A and **1**B may be constructed by cutting out a first inner panel and a corresponding second outer panel, for each section of the garment, from a fabric piece(s) (not shown). An adhesive tape suitable for the particular type of fabric may be placed on the inner face of one of the panels along predetermined sections of the panel to form chambers with the desired shape. Once the adhesive tape is set in place, the second panel may be aligned on top of the panel with the adhesive tape with its inner face facing the tape. Then, the two panels may be pressed together with sufficient force and/or energy applied, to activate the adhesive tape to create a bond(s) between the two panels. The adhesive tape may be activated by heat, or ultrasonic energy, or any other type of applied energy. Once the fabrics are bonded, seams **120** with chambers **130** in between each adhesive taped region are created. The seams **120** may be spaced apart along the length of the garment (as shown), or seams **120** may be spaced apart lengthwise, perpendicular to the length of the garment, along the width of the garment (not shown). The spacing of seams **120** may vary, as may the relative orientation of the seams and/or the shape of the seams, enabling chambers **130** to be different shapes and/or sizes. The chambers **130** may then be filled with down, or synthetic insulating fabrics. Depending on the size and/or shape of the chambers formed, the chambers may be filled with down or thermal insulating fibers, either manually or mechanically. Further, manual filling may be the preferred method if the chambers **130** are relatively small or irregularly shaped. Seams **120** may be perforated during bonding, after bonding, and/or after filling the chambers. Perforations **110** may be formed using a laser, an ultrasonic cutter, and/or a mechanical cutter. The plurality of perforations **110** may provide ventilation and moisture management by allowing moisture vapor from perspiration to escape to the outer environment. Provided the proper equipment, the seams **120** may be simultaneously formed and perforated in a single step, although the seams and perforations may be formed in separate steps without departing from the scope of the present invention.